

# PATENT COOPERATION TREATY-0/521071

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

Rec'd PTO 12 JAN 2005

RECEIVED  
26 FEB 2004

PCT

BY: SC

To:

Ella Cheong Mirandah & Sprusons  
Robinson Road Post Office  
P.O. Box 1531  
SINGAPORE 903031

## NOTIFICATION OF RECEIPT OF DEMAND BY COMPETENT INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

(PCT Rule 59.3(e) and 61.1(b), first sentence  
and Administrative Instructions, Section 601(a))

Date of mailing 16 FEB 2004  
(day/month/year) (16/2/2004)

Applicant's or agent's file reference  
10104SG53/SKL

### IMPORTANT NOTIFICATION

International application No.  
PCT/SG2003/000169

International filing date (day/month/year)  
11 JUL 2003 (11/7/2003)

Priority date (day/month/year)  
12 JUL 2002 (12/7/2002)

Applicant

National Universtiy of Singapore (et al.)

1. The applicant is hereby **notified** that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

6 FEB 2004 (6/2/2004)

2. That date of receipt is:



the actual date of receipt of the demand by this Authority (Rule 61.1(b)).



the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).



the date on which this Authority has, in response to the Invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections.

3. ☐ **Attention:** That date of receipt is **after** the expiration of 19 months from the priority date. Consequently, in respect of some Offices, the demand does not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)) and the acts for entry into the national phase must therefore be performed within 20 months from the priority date (or later in some Offices). **However**, in respect of some other Offices, the time limit of 30 months (or later) may nevertheless apply. See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.



(If applicable) This notification confirms the information given by telephone, facsimile transmission or in person on:

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

Name and mailing address of the IPEA/AU  
**AUSTRALIAN PATENT OFFICE**  
PO BOX 200, WODEN ACT 2606, AUSTRALIA  
E-mail: pct@ipaustalia.gov.au  
Facsimile No. 02 6285 3929

Authorized officer  
**AATHIRAI GNANENDRAN**  
6283 2412  
Telephone No.

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

10/521071

Applicant's or agent's file reference <b>10104SG53/SKL</b>	<b>FOR FURTHER ACTION</b>	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. <b>PCT/SG03/00169</b>	International filing date (day/month/year) <b>11 July 2003</b>	(Earliest) Priority Date (day/month/year) <b>12 July 2002</b>
Applicant <b>NATIONAL UNIVERSTTY OF SINGAPORE et al</b>		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

#### Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title, ☒ the text is approved as submitted by the applicant:

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract, ☒ the text is approved as submitted by the applicant

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure

☐ because this figure better characterizes the invention

☒ None of the figures

**Box I** Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos :  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos : 1, 5 to 9, 11, 12 completely and 10, 13 and 14 in so far as they append to claim 1.  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
Claims 1 and 5 define the subject matter in terms of a result to be achieved and a meaningful search encompassing the entire scope of the claims is not possible. For this reason the search was directed at the claims that appear to be supported by the description, ie. a preparation of hemangioblast cells which are not immunoreactive with CD34, PECAM-1, Flk-1, Tie-2, Sca-1, Thy-1 and P-selectin markers.
3. ☐ Claims Nos :  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

**Box II** Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims  
☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/SG03/00169

## A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. <sup>7</sup>: C12N 5/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

SEE ELECTRONIC DATABASES

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SEE ELECTRONIC DATABASES

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CA, WPIDS, MEDLINE: hemangioblast, stem cell, progenitor, precursor, bone marrow, embryo, blastocyst, embryoid, hematopoie?, endothelial, cultur?

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Kocher et al. (2001) 'Neovascularisation of ischemic myocardium by human bone-marrow-derived angioblasts prevents cardiomyocyte apoptosis, reduces remodeling and improves cardiac function.' Nature Medicine. Vol 7(4): 430-436	-
A	Schuh et al. (1999) 'In vitro hematopoietic and endothelial potential of flk-1 <sup>+</sup> embryonic stem cells and embryos' Proc. Natl. Acad. Sci. USA Vol 96: 2159-2164	-
A	Minehata et al. (2002) 'Macrophage colony stimulating factor modulates the development of hematopoiesis by stimulating the differentiation of endothelial cells in the AGM region' Blood. Vol 99(7): 2360-2368	-

☒ Further documents are listed in the continuation of Box C

☒ See patent family annex

\* Special categories of cited documents:

"I" document defining the general state of the art which is not considered to be of particular relevance

"B" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search  
22 September 2003

Date of mailing of the international search report  
14 OCT 2003

Name and mailing address of the ISA/AU  
AUSTRALIAN PATENT OFFICE  
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**TERRY MOORE**  
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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SG03/00169

**C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 00/11139 A (T. Breeders, Inc.) 2 March 2000	-
A	EP 1229116 A1 (Center for Advanced Science and Technology Incubation, Ltd.) 17 August 2002	-

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/SG03/00169

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
EP	1229116 A1	AU	10579/01	WO	0134797		
WO	00/11139	AU	48521/97	AU	57974/96	CA	2221433
		CA	2221623	EP	0830448	EP	1105463
		EP	1270719	US	5674750	US	5925567
		US	6429012	US	2001036663	US	2002022216
		US	2002150561	WO	9636696		
END OF ANNEX							